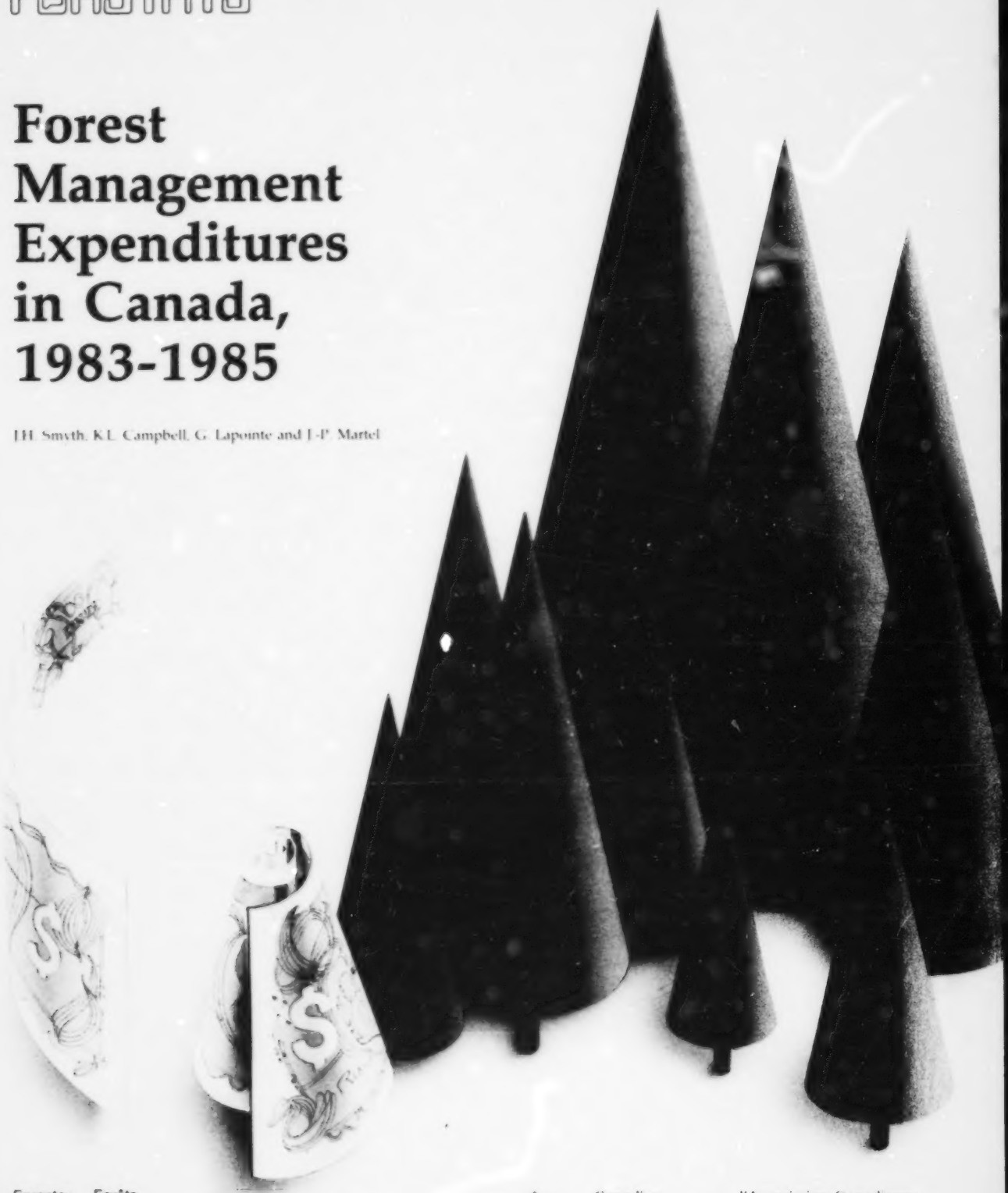
FORSTATS

Forest Management Expenditures in Canada, 1983-1985

J.H. Smyth, K.L. Campbell, G. Lapointe and J.-P. Martel



Forestry Canada Forêts Canada

Canadian Pulp and Paper Association

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Joint Report No. 14

W.S. INDEX 3138

FOREST MANAGEMENT EXPENDITURES IN CANADA, 1983-1985

A JOINT REPORT OF

FORESTRY CANADA, ONTARIO REGION

AND

THE CANADIAN PULP AND PAPER ASSOCIATION

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ABSTRACT

Expenditures in forest management activities are reported for governments for the fiscal years 1984/85 and 1985/86, and for the forest industry for 1985. Total expenditures by all agencies over the two-year period 1984 and 1985 increased by $340 million, from 1.2 billion in 1983 to $1.7 billion in 1985. All areas of management activity recorded increases in expenditures over the period, particularly on silviculture and access roads. Expenditures on silviculture increased by 42%, from $336 million in 1983 to over $476 million in 1985, while those on access roads increased by 51%, from $230 million in 1983 to approximately $347 million in 1985. Trends in expenditures in the public and private sectors (constant and current dollars) are given for the period 1977-1985.

RÉSUMÉ

On trouvera dans ce rapport les sommes d'argent dépensées pour l'aménagement des forêts par les gouvernements, pour les années 1984/85 et 1985/86, et par l'industrie forestière, pour l'année 1985.

Les montants dépensés par les différents intervenants ont augmenté de 340 $ millions, passant de 1.2 $ milliards en 1983 à 1.7 $ milliards en 1985. Toutes les activités reliées à l'aménagement ont connu une augmentation durant cette période, et particulièrement la sylviculture et les travaux de voirie. Les travaux en sylviculture se sont accrus de 42%. De 336 $ millions en 1983, ils ont dépassé les 476 $ millions en 1985. Durant la même période, les dépenses pour le construction de chemins d'accès ont augmenté de 51%, passant de 230 $ millions en 1983 à environ 347 $ millions en 1985. Cette étude couvre les dépenses des secteurs public et privé pour la période 1977-1985 (en dollars constants et courants).

FORSTATS

Forestry Canada's Forest Resource Data (FORSTATS) Program is responsible for the compilation and interpretation of national data on the forest resouce and on changes to it resulting from both natural and human activities. The major components of the FORSTATS Program comprise statistics on forest inventory, forest depletion, forest growth, regeneration, forest management activities, forest management expenditures, and forest industrial activity, and include a broad range of economic indicators.

Forestry Canada's six regional centres and two national institutes participate with the Department's headquarters in the FORSTATS Program. Provincial forest management agencies, other federal and provincial agencies, and forest industries cooperate by providing data for the program.

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INTRODUCTION

This report, a cooperative effort of Forestry Canada (FORCAN) and the Canadian Pulp and Paper Association (CPPA), is the fifth in a series of reports providing information on the level of funding by government and the forest industry for forest management activity in Canada. The first two reports were prepared by Reed and Associates Ltd. (1978, 1980), and the third and fourth reports were prepared jointly by FORCAN and CPPA. For consistency, the present report follows the same format as that of the previous reports.

The purpose of this report is to summarize expenditures for selected categories of forest management and administrative activities in Canada by provincial governments, the federal government, and the forest industry. Data are analyzed and comparisons are made with similar expenditures documented in previous reports.

Forest management, for purposes of this report, includes the whole range of activities from forest renewal to stand improvement, protection, research, and support services. The last-mentioned includes activities such as forest inventory and nursery infrastructure. Expenditures for access road construction and maintenance are also included.

Data for this report were obtained from provincial government agencies responsible for forest management within their respective jurisdiction, forestry related agencies within the federal government, and member companies of the CPPA.

The section on public expenditures for forest management deals with expenditures by provincial governments and the federal government for the two fiscal years 1984/85 and 1985/86. The section on industry expenditures covers the calendar year 1985. For purposes of direct comparison with expenditures by the forest industry, public expenditures are reported on a calendar-year basis. For example, public expenditures for fiscal year 1985/86 are reported as 1985 calendar year data in the last section of the report.

PUBLIC EXPENDITURES ON FOREST MANAGEMENT

Introduction

Eighty-eight percent, or 3.5 million km^2, of Canada's forest land is classified as provincial crown land. The responsibility for forest management on these lands rests with the provinces. The remaining 12%, or 0.5 million km^2, is under federal, private or municipal ownership. Because of the provincial responsibility for the management of provincial crown lands, the role of the federal government in forest research, development, and technology transfer, and the contribution by the federal and provincial governments of funds to forest management activities through cost-shared forest resource development agreements, this section of the report sets out the level of expenditures by both governments on selected forest management activities.

Scope and Method

For purposes of reporting, public expenditures on forest management include the following seven broad categories of activity: silviculture, protection, resource access, forest inventory, research, timber management, and administration/other. Each provincial forestry agency contacted for information was requested to provide a breakdown of its forest management expenditures according to these activities. For silviculture and protection expenditures, further detail was requested. Information for silviculture expenditures was requested for the following subactivities: regeneration, tending, site preparation, marking, and silviculture support. Information was requested on expenditures for protection (against fire and pests). Of the 10 provinces contacted, only six were able to provide the additional breakdown of information requested (see Appendix 2).

Expenditures under federal-provinical forest resource development agreements were assigned to the appropriate management activity, and in the case of silviculture and protection, were detailed according to the subactivities described above.

The selection of forest management activities follows that used in previous reports (Reed et al. 1978, Smyth et al. 1984, and Barron et al. 1986). These activity categories were retained for this report since they continue to accommodate, in the majority of cases, the various accounting procedures followed by the provinces, at the same time providing some degree of continuity for the examination of expenditures over a period of time. A breakdown of each subactivity, where identified, is found in Appendix 1.

The analysis of public forestry expenditures is based on information provided by each provincial forestry agency, FORCAN and the Department of Indian and Northern Affairs.

Both published and unpublished data were used in the analysis. In several provinces, agencies responsible for forest management also administer parks, wildlife, fisheries, tourism, mines, etc. In addition, expenditures on forest management activities are not classified identically in each jurisdiction and, therefore, some adjustments had to be made. Each provincial agency, when preparing data for this study, attempted to account for these problem areas and report the information as accurately as possible.

The expenditure data collected for this report cover fiscal years 1984/85 and 1985/86. Appendix 2 provides a detailed account of expenditures by government for each province and the territories.

Distribution of Public Expenditures by Province/Territory

Table 1 provides provincial and federal expenditures on forest management activities by province and territory for fiscal years 1984/85 and 1985/86. Fiscal 1983/84 is included as a base year against which activity comparisons are made.

Table 1. **Public expenditures on forest management for the period 1983/84, 1984/85 and 1985/86, by province.**

	1983/84			1984/85			1985/86		
	Provincial	Federal	Total[a]	Provincial	Federal	Total[a]	Provincial	Federal	Total[a]
					$000,000				
Newfoundland	12.2	15.8	28.0	8.5	20.5	29.0	12.3	17.0	29.2
Prince Edward Island	1.6	2.0	3.6	1.9	2.1	4.0	2.1	2.7	4.8
Nova Scotia	14.3	4.3	18.6	15.0	5.6	20.6	18.4	9.5	27.9
New Brunswick	31.9	17.6	49.5	30.1	12.8	42.9	34.0	16.3	50.3
Quebec	131.3	50.1	181.4	175.4	19.5	194.9	191.0	35.0	226.1
Ontario	237.2	31.0	268.1	238.4	35.9	274.3	278.2	39.5	317.7
Manitoba	5.8	-	5.8	7.4	2.7	10.1	7.8	2.7	10.5
Saskatchewan	14.3	-	14.3	22.6	0.4	23.1	16.5	3.0	19.5
Alberta	64.6	7.3	72.0	66.2	10.5	76.7	68.5	8.9	77.4
British Columbia	270.7	14.3	284.9	317.4	14.6	332.0	434.5	20.8	455.2
Yukon/Northwest Territories	-	27.1	27.1	-	22.4	22.4	-	21.2	21.2
FORCAN[b]	-	14.1	14.1	-	35.2	35.2	-	32.3	32.3
Total[a]	783.9	183.6	967.5	882.9	182.3	1,065.2	1,063.0	209.0	1,272.0

[a] Totals may not be precise because of rounding.
[b] FORCAN headquarters, National Capital Region.

Source: Appendix 2.

For Canada, management expenditures totalled $1.065 billion in 1984/85, increasing sharply by 19% to $1.272 billion in 1985/86. The sharp increase in expenditures in 1984/85 and 1985/86 over those of 1983/84 was related primarily to the increase in provincial expenditures for forest protection and silviculture. For the three years shown, provincial expenditures as a proportion of total dollars spent increased from 81% in 1983/84 to 83% in 1984/85 and 84% in 1985/86. As expected, the greatest share of provincial dollars expended on forest management activities in each of the three years tabulated came from British Columbia, Alberta, Ontario and Quebec. Of total provincial expenditures, these four provinces accounted for 90%, 90% and 91%, respectively, in each year.

Federal funds directed to forest management activities decreased slightly from $183.6 million in 1983/84 to $182.3 million in 1984/85; however, they increased significantly (by 15%) in 1985/86 to $209.0 million. The greatest percentage of these funds was disbursed through federal-provincial forest resource development agreements, and the regional forestry centres and national institutes of FORCAN. Approximately 50% and 54% of the total funds expended in 1984/85 and 1985/86, respectively, were disbursed in the provinces of Newfoundland, Quebec, Ontario, and British Columbia. All forest management activity conducted in the Yukon Territory and Northwest Territories is funded by the federal government.

Distribution of Public Expenditures by Management Activity

Tables 2, 3 and 4 provide a national summary of public expenditures by the seven previously defined management activities for the fiscal years 1983/84 to 1985/86. Table 5 provides a summary of total federal and provincial expenditures for the nine-year period, 1977/78 to 1985/86.

Silviculture, for purposes of reporting, consists of the following subactivities: regeneration, site preparation, tending, marking and silvicultural support. The greatest percentage of total silviculture expenditures in provinces west of Atlantic Canada was expended on forest renewal, related site preparation and silvicultural support operations. In Atlantic Canada, tending was the single most important subactivity on which the silviculture budget was disbursed. Extension forestry and various provincial assistance programs for the small private woodlot owner are included in the estimates. On a national basis, expenditures during the survey period totalled $341.1 million in 1984/85, increasing to $413.3 million in 1985/86. The increase, in current dollars, over the three-year period 1983/84 to 1985/86 was 38%.

The forest protection program in each of the provinces and territories is intended primarily to protect the forest from damage by wildfire and pests, especially insects and diseases. Expenditures on protection across the country tend to vary from year to year, depending on the incidence of fire and pest problems. On a national basis, expenditures on protection increased marginally to $214.0 million in 1984/85 over the 1983/84 figure of $207.9 million. However, forest fire and insect problems in several provinces, particularly Ontario

Table 2. **Distribution of public expenditures on forest management for 1983/84, 1984/85 and 1985/86, by activity.**

	1983/84			1984/85			1985/86		
	Provincial	Federal	Total[a]	Provincial	Federal	Total[a]	Provincial	Federal	Total[a]
	$000,000								
Silviculture	240.9	58.4	299.3	302.4	38.7	341.1	349.8	63.3	413.3
Protection	182.1	25.8	207.9	191.5	22.5	214.0	299.3	20.4	319.8
Resource access	87.1	20.7	107.8	95.9	10.4	106.3	99.8	8.1	107.9
Inventory	21.3	.7	22.0	19.8	1.9	21.7	20.6	3.2	23.8
Research	18.3	58.9	77.2	18.6	66.2	84.7	20.6	68.8	89.4
Timber Management	75.1	2.8	77.9	76.9	3.0	79.9	85.2	3.6	88.8
Administration/other	159.2	16.3	175.5	177.9	39.6	217.5	187.6	41.5	229.1
Total[a]	783.9	183.6	967.5	882.9	182.3	1,065.2	1,063.0	209.0	1,272.0

[a] Totals may not be precise because of rounding.

Source: Appendix 2.

Table 3. **Public expenditures on forest management, by activity, 1984/85.**

	Silviculture	Protection	Resource access	Inventory	Research	Timber management	Administration/ Other	Total[a]
	$000,000							
Newfoundland	8.6	3.3	4.8	1.1	7.1	0.4	3.6	29.0
Prince Edward Island	2.4	-	0.1	0.1	0.1	0.6	0.6	4.0
Nova Scotia	8.3	3.5	2.1	0.9	0.6	1.3	3.8	20.6
New Brunswick	10.4	10.5	0.2	1.2	7.6	0.5	12.6	42.9
Quebec	90.5	30.8	15.1	4.2	11.9	17.9	24.5	194.9
Ontario	87.6	45.8	60.0	1.9	26.3	12.3	40.4	274.3
Manitoba	5.9	2.4	-	1.1	0.3	0.1	0.4	10.1
Saskatchewan	3.9	15.0	0.7	1.4	0.1	0.5	1.4	23.1
Alberta	8.8	23.1	-	1.4	11.9	1.9	29.5	76.7
British Columbia	114.7	58.6	23.1	8.4	18.7	43.1	65.4	332.0
Yukon/Northwest Territories	-	21.0	-	-	-	1.5	-	22.4
FORCAN[b]	-	-	-	-	-	-	35.2	35.2
Total[a]	341.1	214.0	106.2	21.7	84.7	79.9	217.5	1,065.2

[a] Totals may not be precise because of rounding.
[b] FORCAN Headquarters, National Capital Region.

Source: Appendix 2.

Table 4. **Public expenditures on forest management, by activity, 1985/86.**

	Silviculture	Protection	Resource access	Inventory	Research	Timber management	Administration/ Other	Total[a]
				$000,000				
Newfoundland	8.5	4.1	3.1	2.2	5.3	2.4	3.6	29.2
Prince Edward Island	2.9	0.2	0.1	0.1	0.2	0.7	0.7	4.8
Nova Scotia	12.0	4.7	2.2	1.1	0.8	1.5	5.7	27.9
New Brunswick	14.7	11.1	0.2	1.1	8.5	0.6	14.1	50.3
Quebec	104.6	34.3	11.3	5.2	12.6	18.6	39.5	226.1
Ontario	110.2	58.8	62.5	1.8	26.6	14.7	43.0	317.7
Manitoba	5.1	2.0	-	1.2	1.4	0.3	0.5	10.5
Saskatchewan	4.8	9.3	1.5	1.9	0.5	0.3	1.1	19.5
Alberta	9.7	21.1	-	1.5	11.1	1.8	32.3	77.4
British Columbia	140.8	154.8	26.8	7.8	22.4	46.2	56.5	455.2
Yukon/Northwest Territories	-	19.4	-	-	-	1.8	-	21.2
FORCAN[b]	-	-	-	-	-	-	32.3	32.3
Total[a]	413.3	319.8	107.8	23.8	89.4	88.8	229.1	1,272.0

[a] Totals may not be precise because of rounding.
[b] FORCAN headquarters, National Capital Region.

Source: Appendix 2.

Table 5. **Federal and provincial expenditures on forest management activities, 1977/78 to 1985/86.**

	1977/78	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86
	$000,000							
Provincial								
Newfoundland	6.4	7.1	11.0	13.3	13.0	12.2	8.5	12.3
Prince Edward Island	0.2	0.6	1.0	1.2	1.7	1.6	1.9	2.1
Nova Scotia	12.4	8.3	11.5	10.6	12.0	14.3	15.0	18.4
New Brunswick	16.1	18.3	21.4	26.7	32.0	31.9	30.1	34.0
Quebec	73.6	95.1	91.8	106.5	118.1	131.3	175.4	191.0
Ontario	86.9	106.2	162.5	176.3	203.4	237.2	238.4	278.2
Manitoba	6.3	9.5	19.0	15.7	5.8	5.8	7.4	7.8
Saskatchewan	7.7	13.2	27.5	34.0	14.5	14.3	22.6	16.5
Alberta	26.9	45.4	79.0	116.3	122.7	64.6	66.2	68.5
British Columbia	125.2	186.7	256.6	284.9	296.9	270.7	317.4	434.3
Subtotal	361.7	490.4	681.3	785.5	820.0	783.9	882.9	1,063.0
Federal	76.8	103.3	121.8	142.7	150.8	183.6	182.3	209.0
Total	438.5	593.7	803.1	928.2	970.8	967.5	1,065.2	1,272.0

Note: Expenditure data for 1978/79 not available.

Sources: Smyth et al. 1984
Barron et al. 1986

and British Columbia, raised the 1985/86 expenditures on these activities to $319.8 million. During that year, British Columbia had the heaviest expenses ($154.8 million), mainly for forest fire suppression. Ninety percent of the country's expenditures on protection in 1985/86 were disbursed in Quebec, Ontario, Alberta, British Columbia, and the territories.

Resource access includes expenditures for permanent roads, bridges, and other supporting infrastructure, as well as stumpage offsets in British Columbia. Most roads constructed by the provinces are multipurpose and may be of a higher standard than would normally be required for harvesting, silviculture, or protection purposes. On a national basis, monies expended on resource access stabilized over the period 1983/84 to 1985/86, and were $107.8, $106.3, and $107.9 million in each of the three fiscal years, respectively. Over 90% of total public expenditures on road access during the current survey period were in Quebec, Ontario, and British Columbia. Only Ontario, Saskatchewan and British Columbia reported increasing expenditures on road construction over the three-year period. Quebec's expenditures dropped from $20.0 million in 1983/84 to $11.3 million in 1985/86, while those in British Columbia dropped marginally to $23.1 million in 1984/85 from $23.7 million in 1983/84 but increased to $26.8 million in 1985/86. Under federal-provincial forest resource development agreements, the federal government contributed approximately 8% of total funding for resource access programs over the survey period; this was down considerably from an average of 20% during the previous 3-year period (1980/81 to 1983/84) (Barron et al. 1986).

Expenditures on forest inventory vary considerably from year to year in each province, reflecting to some degree the priority each jurisdiction puts on its inventory requirements. Over the two-year survey period expenditures on forest inventory (including contributions under federal-provincial forest resource development agreements) averaged approximately $23 million, or about 2% of total management expenditures. The three largest provinces, Quebec, Ontario and British Columbia combined, represented 67% and 62% of total national inventory expenditures in each of the two survey years, respectively. Nova Scotia, Manitoba, Saskatchewan and Alberta reported annual increases in their inventory expenditures over the period since 1983/84, while British Columbia was the only province reporting a decline in expenditures during the same period. The Yukon and Northwest Territories did not report any expenditures on forest inventory activities.

Forest research, development and technology transfer are undertaken primarily by the federal government; however, all provinces invest a portion of their forest management budget in these activities, some more than others. Total provincial and federal funds expended during the survey period were $84.7 million and $89.4 million, respectively. Of these totals, the combined provincial government share was 22% in 1984/85 and 23% in 1985/86. Although provincial expenditures have increased annually in absolute terms, the combined share, as a percentage of total expenditures, has declined over the past five years, from 29% of the national total in 1981/82 to 23% in 1985/86. The combined

federal and provincial expenditures on forest research activities under the federal-provincial forest resource development agreements comprised 4% of total national research expenditures in 1984/85 and 10% in 1985/86 (Appendix 2). FORCAN, the federal agency that conducts most of the forest research in Canada, spent directly approximately $64 million in each of the two survey years (Appendix 2). Additional federal contributions to forest research, development and technology transfer activities were made through federal-provincial forest resource development agreements, bringing the total federal contribution to $66.2 million in 1984/85 and $68.8 million in 1985/86.

Timber management on provincial crown lands is a provincial responsibility. It includes operational activities such as timber surveys, cut inspections, and management planning. For the two years surveyed, provincial funding of this activity averaged 8% of total provincial management expenditures.

The Administration/Other category covers mainly overhead and support services for forest management activities. For the federal government, it includes other miscellaneous expenditures that do not fit appropriately into the management activities described above. Administration/Other expenditures in 1984/85 and 1985/86 represented 20% and 18% of total provincial expenditures, and 22% and 20% of total federal expenditures, respectively.

A Comparison of Total Management Expenditures, 1979/80—1985/86

Figures 1 and 2 show total provincial and federal forest management expenditures, respectively, for the period 1979/80 to 1985/86, in both current and constant dollars.

During the 7-year period beginning in fiscal 1979/80, provincial expenditures (current dollars) on forest management activities more than doubled (Fig. 1), from $490.4 million in 1979/80 to $1.1 billion in 1985/86. This increase represents an annual compound rate of growth of 11.7%. In real terms[3], forest management activities experienced a 35% growth in expenditures over the period, increasing from $612.4 million in 1979/80 to $825.3 million in 1985/86. There was, however, a modest decrease in forest management budgets during and immediately following the recession of 1981 and 1982.

Figure 2 illustrates federal government expenditures on forest management activities for the same period noted above. These expenditures include the direct operational costs of several federal departments as well as the federal share of federal-provincial forest resource development agreements. The percentage increase in federal expenditures over the period was marginally less than that of the provinces. Expenditures (current dollars) increased from $103.3 million in 1979/80 to $209.0 million in 1985/86, just slightly more than double over the period. This increase represents an annual compound rate of growth of just slightly over 10.5%. In real terms, growth over the period was approximately 26%.

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[3] 1981 = 100. GDP Implicit Price Index: current government expenditures

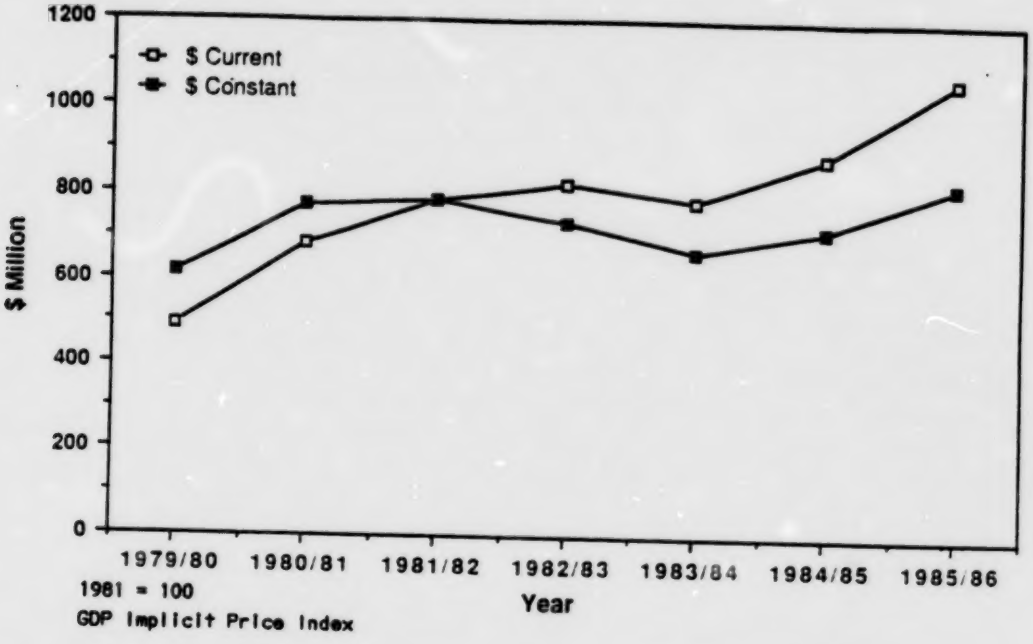

Figure 1. Provincial government expenditures on forest management activities, 1979/80 to 1985/86.

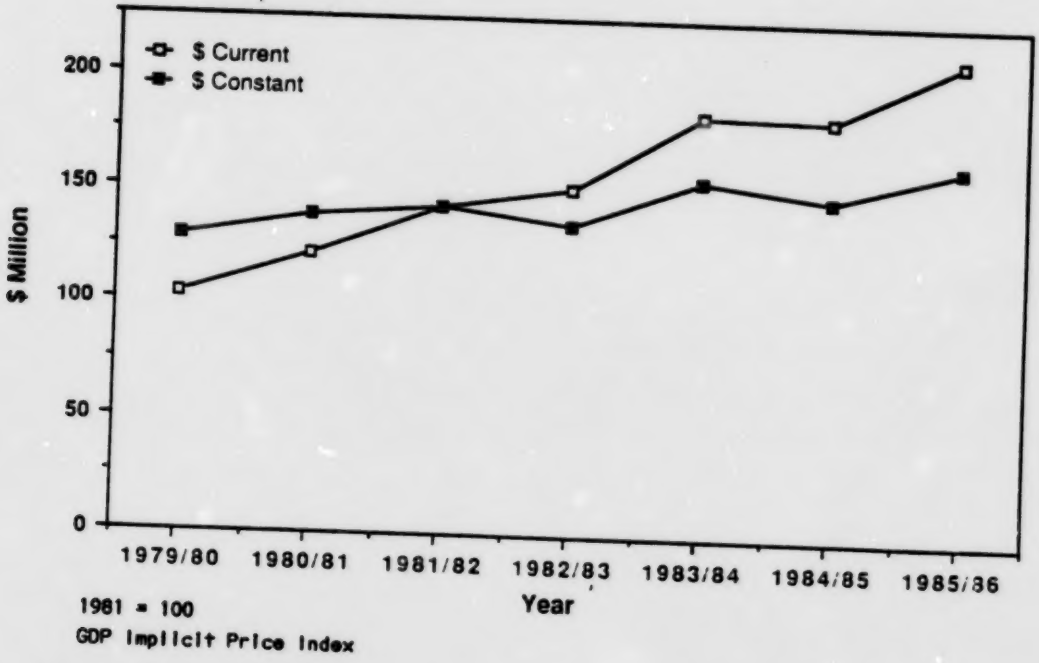

Figure 2. Federal government expenditures on forest management activities, 1979/80 to 1985/86.

The forest management expenditure information obtained from provincial forestry agencies, FORCAN, and other federal departments for the survey period 1984/85 and 1985/86 has been interpreted with care to avoid misleading generalizations. The seven management activity categories to which expenditures were assigned were chosen to provide a general perspective on the disbursement of funds for forest management, as well as to enable a trend in national and provincial forest management expenditures to be described over a period of time. Because of differences in accounting and record keeping among provinces and federal agencies, the expenditures assigned to each activity may not represent the total effort in each province or territory, or within FORCAN. Total figures, however, do represent the overall effort, and variations in expenditures for each activity are considered to be minor.

INDUSTRY EXPENDITURES ON FOREST MANAGEMENT

Introduction

Industrial expenditures on forest management fall into two broad categories: those for the management of private industrial forests, and those that the industry incurs in the management of publicly owned provincial crown lands. The categories are not separated in this report since in most situations private and public lands are managed together as an integrated timber supply.

Private forest lands in Canada are approximately 8% of the total productive forest land area, but have been estimated to supply 15% of the annual timber harvest. Much of the private forest is in small, non-industrial holdings rather than in larger industrial tracts. Private lands are important sources of timber in Nova Scotia, New Brunswick, Prince Edward Island, the southern parts of Quebec, Ontario and British Columbia and other parts of the country where large blocks of private land were sold or ceded by the crown for development purposes.

Provincial crown lands play a dominant role in the industry's timber supply by providing approximately 85% of the wood used. Federal lands account for only 1% of the timber harvest.

The degree to which the industry participates in forest management on public lands varies considerably across the country. Generally speaking, the nature and extent of this participation is determined by the level to which forest management responsibility is delegated under the various agreements and tenures through which the industry secures its timber supply. In most provinces, cutting rights on crown lands have been awarded to the industry under long-term licences or leases covering extensive areas of land. Under many of these tenures, the licensee is responsible for management practices that relate to the existing crop, such as inventory, working plans, and cutting systems. These are usually subject to the approval of provincial forest authorities.

Under some tenures, the responsibility for reforestation and stand treatment has been retained by the province, but usually the tenure agreement assigns responsibility for these treatments to the licensee. In some cases, the crown provides stumpage offsets or rebates to allow for cost recovery. Provincial audits are performed periodically to determine the extent and quality of these treatments. Favorable audits are a prerequisite for licence renewal.

In addition to long-term licences, a portion of the cutting rights on provincial lands is awarded in small parcels for shorter periods. In most cases, licensees under these short-term timber sales have no responsibility for management beyond harvesting the present crop in accordance with provincial utilization standards. In British Columbia and Alberta, however, some short-term timber sales also require the licensee to be responsible for regeneration.

Survey of the Forest Industry

Industry expenditures on forest management are reported under the categories of silviculture, forest protection, forest access and other forestry. The silviculture category is further subdivided into regeneration and stand tending. These categories of activities are described in detail in Appendix 1.

Since 1977, the CPPA has surveyed its member companies to determine the amount and cost of forest management work undertaken. The purpose was to track changes in the levels of these efforts and expenditures. In 1977 and 1979, sector-wide estimates were made for the CPPA by F.L.C. Reed and Associates Ltd. (Reed et al. 1978, 1980). In addition to data from CPPA member companies, the remaining expenditures by industry and the provincial and federal governments were included. This same procedure was followed in 1983 for the joint FORCAN/ CPPA surveys and for the report **Forest Management Expenditures in Canada, 1977 - 1983** (Barron et al. 1986).

When the estimates of industrial expenditures were being prepared, a detailed survey of CPPA member companies was conducted. This was combined with estimates of the remaining expenditures by industry in each province.

Expenditures are reported in three ways:

a) the gross expenditure by industry or an account of all dollars spent by companies
b) the money recovered from governments either as payment for work done or as offsets against stumpage
c) the net dollars expended by industry.

The latter is the combination of money spent on the management of private industrial lands and public land but not recovered from government sources.

Reported in this section are the industrial expenditures over the period 1977 to 1985. Analyses and comparisons in the text are made only between 1983 and 1985 data, since similar analyses for other reporting years can be found in earlier reports.

Distribution of Industry Expenditures, by Province

Table 6 shows the distribution of forest management expenditures by industry for 1983 and 1985. Total expenditures in 1985 — the year surveyed for this report — were $549.6 million, of which $143.7 million was recovered from government through direct payments or as stumpage offsets. This leaves a net industry expenditure of $405.9 million. Both gross and net expenditures were substantially higher in 1985 than in 1983, and reflect a significant increase in forest management activities. Net industry expenditures rose by 45% over the two-year period.

Table 6. **Industry expenditures on forest management for 1983 and 1985, by province.**

	1983			1985		
	Gross expenditures	Recovered from government	Net industry	Gross expenditures	Recovered from government	Net industry
	$ 000,000					
Newfoundland	7.5	2.5	5.0	11.7	4.0	7.7
Nova Scotia	9.4	1.7	7.7	13.3	3.0	10.3
New Brunswick	16.8	3.2	13.6	21.3	4.5	16.8
Quebec	69.1	17.1	51.9	54.4	13.1	41.3
Ontario	61.2	28.4	32.8	81.3	44.2	37.1
Manitoba	2.1	0.5	1.6	4.1	1.4	2.7
Saskatchewan	1.9	-	1.9	1.7	0.3	1.4
Alberta	16.9	0.5	16.4	19.7	0.6	19.0
British Columbia	211.8	62.5	149.3	342.2	72.6	269.6
Total[a]	396.7	116.4	280.3	549.6	143.7	405.9

[a] Totals may not be precise because of rounding.

Source: Canadian Pulp and Paper Association

Current and net industry expenditures are up from 1983 to 1985 in all provinces except Quebec and Saskatchewan. This positive shift may be attributed to a higher level of activity by an industry recovering rapidly from the recession in 1981 and 1982.

Distribution of Industry Expenditures by Activity

Table 7 shows the distribution of industry expenditures, by category of activity, for 1983 and 1985. The overall increase in gross and net industrial expenditures is attributed to the more buoyant economy following the earlier recessionary period. This is very evident in the category of forest access, which is most closely associated with harvesting and demand for wood. Gross expenditures on forest access jumped substantially, from $170.3 million in 1983 to $290.4 million in 1985. The portion recovered from government increased slightly, from $48.5 million to $51.6 million, and the net, therefore, almost doubled, from $121.8 million to $238.8 million.

Forest protection costs vary from year to year, depending upon the incidence of fire and insect infestations; they have little relation to levels of economic activity. In this category, industry expenditures were 17% higher in 1985 than in 1983.

Of considerable interest is the increasing effort in silviculture. Between 1983 and 1985, gross expenditures in this category rose from $99.5 million to $149.7 million; recoveries from government were also up, from $63.0 million to $86.4 million. Net industry expenditures, therefore, increased by 73% to $63.3 million and reflect the much increased effort in this activity.

The category "other forestry", which is mainly administration, planning and support, decreased in terms of both gross and net expenditures. Net industry expenditures in this category amounted to $64.4 million in 1985.

The total dollars expended in these categories between 1983 and 1985 are influenced by conditions that differ from province to province.

Distribution of Net Industry Expenditures by Province and Activity

Tables 8 and 9 outline the net industry expenditures for each province, by category. Expenditures are up in every province except Quebec and Saskatchewan, reductions in access accounting for most of the reduction in these two provinces.

Except for a small reduction in Saskatchewan, net silviculture expenditures rose in all provinces, for a total outlay of $63.3 million in 1985. This represents a healthy increase of 73% across Canada.

Table 7. **Industry expenditures on forest management for 1983 and 1985, by activity.**

Activity	1983			1985		
	Gross expenditures	Recovered from government	Net industry	Gross expenditures	Recovered from government	Net industry
	$ 000,000					
Regeneration	87.1	-	-	122.9	-	-
Stand tending	12.4	-	-	26.8	-	-
Silviculture	99.5	63.0	36.6	149.7	86.4	63.3
Forest protection	36.4	2.6	33.7	42.1	2.7	39.4
Forest access	170.3	48.5	121.8	290.4	51.6	238.8
Other forestry	90.4	2.3	88.1	67.4	3.0	64.4
Total[a]	396.7	116.4	280.3	549.6	143.7	405.9

[a] Totals may not be precise because of rounding.

Source: Canadian Pulp and Paper Association

Table 8. **Net industry expenditures on forest management, by province and activity, 1983.**

	Silviculture	Forest protection	Forest access	Other forestry	Total[a]
			$ 000,000		
Newfoundland	1.3	1.7	1.2	0.8	5.0
Nova Scotia	3.1	0.1	2.8	1.7	7.7
New Brunswick	3.8	1.8	3.7	4.3	13.6
Quebec	3.9	11.4	26.2	10.5	51.9
Ontario	4.6	7.3	14.3	6.5	32.8
Manitoba	-	-	1.0	0.6	1.6
Saskatchewan	1.0	-	0.4	0.5	1.9
Alberta	4.5	1.6	6.4	3.9	16.4
British Columbia	14.3	9.7	65.9	59.3	149.3
Total[a]	36.6	33.7	121.8	88.1	280.3

[a] Totals may not be precise because of rounding.

Source: Barron et al. 1986.

Table 9. **Net industry expenditures on forest management, by province and activity, 1985.**

	Silviculture	Forest protection	Forest access	Other forestry	Total[a]
			$ 000,000		
Newfoundland	1.8	2.4	1.9	1.7	7.7
Nova Scotia	4.5	-	3.3	2.4	10.3
New Brunswick	8.8	2.6	1.2	4.1	16.8
Quebec	8.7	12.0	12.3	8.3	41.3
Ontario	5.9	4.7	17.7	8.8	37.1
Manitoba	0.5	-	1.1	1.1	2.7
Saskatchewan	0.8	-	-	0.5	1.4
Alberta	5.3	1.7	6.1	5.9	19.0
British Columbia	27.0	15.8	195.1	31.6	269.6
Total[a]	63.3	39.4	238.8	64.4	405.9

[a] Totals may not be precise because of rounding.

Source: Appendix 3.

Changes in forest protection costs, as anticipated, vary from province to province. Costs in Ontario and Nova Scotia declined, those in Manitoba and Saskatchewan remained virtually unchanged, while the other provinces experienced increases. Over all, expenditures were up by 17% to $39.4 million.

Total outlays for roads almost doubled across Canada, although there was no consistent pattern among provinces. Quebec showed a significant decline in access expenditures, while British Columbia more than compensated for this reduction with a remarkable increase. Total outlays increased by $117 million to $238.8 million.

The only category to show a decline in expenditures is "other forestry". Again, the pattern varies from province to province, with British Columbia showing the largest single drop (to $31.6 million in 1985).

Table 10 shows the net industry expenditures, by province, for the years 1977, 1979, 1981, 1983 and 1985. Net industry expenditures for Canada are shown in Figure 3 for the same years in both current and constant dollars.

Table 10. **Summary of net industry expenditures on forest management, by province, 1977 to 1985.**

	1977	1979	1981	1983	1985	Increase between 1977 and 1985 (%)
			$ 000,000			
Newfoundland	1.4	3.4	7.7	5.0	7.7	450
Nova Scotia	5.3	5.1	10.4	7.7	10.3	94
New Brunswick	10.7	14.6	20.6	13.6	16.8	57
Quebec	43.4	48.4	55.1	51.9	41.3	- 5
Ontario	29.7	28.9	29.1	32.8	37.1	25
Manitoba	1.0	1.4	2.4	1.6	2.7	170
Saskatchewan	2.7	3.0	4.8	1.9	1.4	- 48
Alberta	13.0	8.4	10.2	16.4	19.0	46
British Columbia	113.6	164.8	179.1	149.3	269.6	137
Total[a]	220.8	278.0	319.4	280.3	405.9	84

[a] Totals may not be precise because of rounding.

The increase in current dollars is 84% for the entire period. Most categories of expense are sensitive to economic conditions. The significant rise of 45% between 1983 and 1985 readily attests to this sensitivity and reflects the much more buoyant forest economy in the latter year. The effects of the recession during the early 1980s are apparent in the constant dollar curve shown in Figure 3.

More detailed information for each province may be found in Appendix 3.

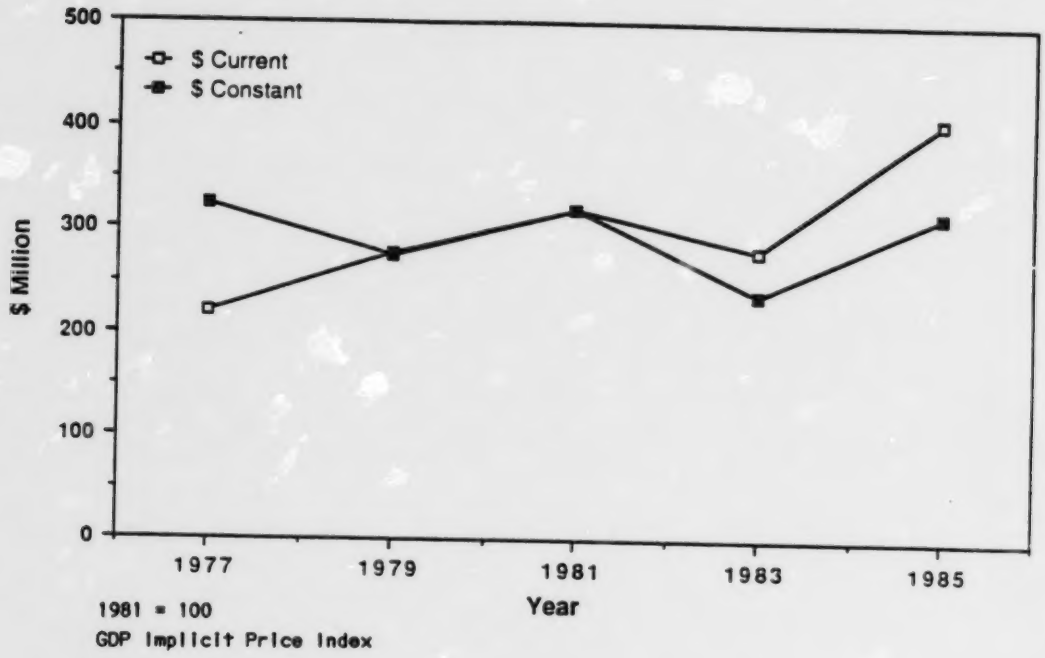

Figure 3. Industry expenditures on forest management, 1977-1985.

SUMMARY OF PUBLIC AND INDUSTRY EXPENDITURES ON FOREST MANAGEMENT

This report summarizes expenditures on forest management activities by government for the two fiscal years 1984/85 and 1985/86, and by industry for the calendar year 1985. For comparison with industry expenditures, government expenditures for fiscal 1983/84 and 1985/86 are recorded in this section of the report as expenditures for calendar years 1983 and 1985, respectively.

Total expenditures on forest management by the federal government, provincial governments, and the forest industry increased by $340 million to $1.7 billion in 1985, from just over $1.2 billion reported in 1983. This represents a 34% increase (current dollars) over the period. Provincial government expenditures on forest management activities increased in all provinces, particularly in British Columbia, where expenditures increased by over 60%, from $271 million in 1983 to $434 million in 1985. Industry expenditures increased in all provinces except Quebec and Saskatchewan. Federal contributions to forest management activity increased in all provinces except New Brunswick and Quebec. There was also a decline in federal expenditures on forest management activities in the Yukon and Northwest Territories during the period.

All categories of management expenditure recorded increases in the two-year period following 1983. The two most significant increases were in expenditures on silviculture and access roads. Silviculture expenditures increased by 42%, from $336 million in 1983 to over $476 million in 1985; expenditures on access roads increased by 51%, from $230 million in 1983 to approximately $347 million in 1985. Expenditures by provincial governments on silviculture activities increased by 45%, from $241 million in 1983 to $350 million in 1985, whereas those by industry increased by 70%, from $37 million in 1983 to $63 million in 1985. Expenditures on access roads by provincial governments increased by only $13 million (15%) between 1983 and 1985, while those by industry increased by $117 million (96%) during the same period.

Table 11 provides a summary of public and industry expenditures on forest management for 1983 and 1985, by funding source and jurisdiction, and Table 12 provides a breakdown of the distribution of public and industry expenditures, by funding source and management category. Tables 13 and 14 summarize the total value of public and industry expenditures, by jurisdiction and management category, for 1983 and 1985, respectively.

Silviculture

Expenditures on silviculture, as in the years since 1977, continued their upward trend during 1984 and 1985 in all provinces except Alberta, and the trend is expected to continue over the short and medium term as most provinces address the problems of backlog, regeneration of recently harvested forest lands, expansion of intensive forest management practices, and so on. The percentage increase in 1985 expenditures in comparison with those of 1983 was greatest in the provinces of Nova Scotia, New Brunswick, Quebec, Manitoba and British Columbia, where expenditures in each jurisdiction rose by over 50% during the two-year period. While not large in absolute terms, expenditures on silviculture activities in Manitoba rose by 195%, from $1.9 million in 1983 to

Table 11. Public and industry expenditures on forest management for 1983 and 1985, by province[a].

	1983				1985			
	Provincial	Federal	Industrial	Total[b]	Provincial	Federal	Industrial	Total[b]
	$000,000							
Newfoundland	12.2	15.8	5.0	33.0	12.3	17.0	7.7	37.0
Prince Edward Island	1.6	2.0	0.0	3.6	2.1	2.7	0.0	4.8
Nova Scotia	14.3	4.3	7.7	26.3	18.4	9.5	10.3	38.2
New Brunswick	31.9	17.6	13.6	63.1	34.0	16.3	16.8	67.1
Quebec	131.3	50.1	51.9	233.3	191.0	35.0	41.3	267.3
Ontario	237.2	31.0	32.8	301.0	278.2	39.5	37.1	354.8
Manitoba	5.8	-	1.6	7.4	7.8	2.7	2.7	13.2
Saskatchewan	14.3	-	1.9	16.2	16.5	3.0	1.4	20.9
Alberta	64.6	7.3	16.4	88.3	68.5	8.9	19.0	96.4
British Columbia	270.7	14.3	149.3	434.3	434.5	20.8	269.6	724.9
Yukon/Northwest Territories	-	27.1	-	27.1	-	21.2	-	21.2
FORCAN-NCR	-	14.1	-	14.1	-	32.3	-	32.3
Total[b]	783.9	183.6	280.3	1,247.8	1,063.0	209.0	405.9	1,677.9

[a] Government figures are for fiscal years 1983/84 and 1985/86.
[b] Totals may not be precise because of rounding.

Table 12. **Distribution of public and industry expenditures on forest management activity for 1983 and 1985[a].**

	1983					1985			
	Provincial	Federal	Industrial	Total[c]	$000,000	Provincial	Federal	Industrial	Total[c]
Silviculture	240.9	58.4	36.6	335.9		349.8	63.5	63.3	476.6
Protection	182.1	25.8	33.7	241.6		299.3	20.4	39.4	359.1
Access	87.1	20.7	121.8	229.6		99.8	8.1	238.8	346.7
Research	18.3	58.9	0.0	77.2		20.6	68.8	0.0	89.4
Other[b]	255.6	19.8	88.1	363.5		293.4	48.3	64.4	406.1
Total[c]	783.9	183.6	280.3	1,247.8		1,063.0	209.0	405.9	1,677.9

[a] Government figures are for fiscal years 1983/84 and 1985/86.
[b] "Other" includes "Inventory", "Timber management", and "Administration/Other" categories of public expenditures and the "Other Forestry" category of industry expenditures.
[c] Totals may not be precise because of rounding.

Table 13. **Public and industry expenditures on forest management, by province and activity, 1983[a].**

	Silviculture	Protection	Access	Research	Other	Total[b]
			$000,000			
Newfoundland	8.6	3.6	5.8	4.3	10.7	33.0
Prince Edward Island	2.2	0.0	0.1	0.1	1.2	3.6
Nova Scotia	9.6	3.3	5.2	0.5	7.7	26.3
New Brunswick	15.5	16.6	3.8	8.7	18.7	63.1
Quebec	71.5	49.6	46.2	10.4	55.7	233.3
Ontario	95.5	65.2	71.3	25.6	43.3	300.9
Manitoba	1.9	1.9	1.0	0.0	2.6	7.4
Saskatchewan	4.1	7.8	0.4	0.1	3.8	16.2
Alberta	17.2	19.5	6.4	9.7	35.6	88.4
British Columbia	109.8	48.9	89.6	17.7	168.2	434.2
Yukon/Northwest Territories	-	25.3	-	-	1.9	27.1
FORCAN-NCR	-	-	-	-	14.1	14.1
Total[b]	335.9	241.6	229.6	77.2	363.5	1,247.8

[a] Public expenditures included in this table are for fiscal year 1983/84.
[b] Totals may not be precise because of rounding.

Source: Barron et al. 1986.

Table 14. **Public and industry expenditures on forest management, by province and activity, 1985[a].**

	Silviculture	Protection	Access	Research	Other	Total[b]
			$000,000			
Newfoundland	10.3	6.5	5.0	5.3	9.9	37.0
Prince Edward Island	2.9	0.2	0.1	0.2	1.5	4.9
Nova Scotia	16.5	4.7	5.5	0.8	10.7	38.2
New Brunswick	23.5	13.7	1.4	8.5	19.9	67.0
Quebec	113.3	46.3	23.6	12.6	71.6	267.4
Ontario	116.1	63.5	80.2	26.6	68.3	354.7
Manitoba	5.6	2.0	1.1	1.4	3.1	13.2
Saskatchewan	5.6	9.3	1.5	0.5	3.8	20.7
Alberta	15.0	22.8	6.1	11.1	41.5	96.5
British Columbia	167.8	170.6	221.9	22.4	142.1	724.8
Yukon/Northwest Territories	-	19.4	-	-	1.8	21.2
FORCAN-NCR	-	-	-	-	32.3	32.3
Total[b]	476.6	359.1	346.4	89.4	406.1	1,677.9

[a] Public expenditures included in this table are for fiscal year 1985/86.
[b] Totals may not be precise because of rounding.

$5.6 million in 1985. On the other hand, the largest increase in absolute terms was in British Columbia, where expenditures rose by $58 million, from $110 million in 1983 to $168 million in 1985. This rise in expenditures amounts to a 53% increase.

Forest Protection

Annual expenditures on forest protection vary considerably, depending on environmental factors (e.g., unpredictable weather conditions) and natural cyclical insect population patterns. In general, there is a long-term trend to increased levels of protection of the resource because of the need to conserve the mature forest in order to bridge the timber supply requirements through to the harvest of the new forest. From 1983 to 1985, expenditures increased significantly, from $242 million in 1983 to $359 million in 1985. The most signficant rise was recorded in British Columbia, where expenditures increased from $49 million in 1983 to $171 million in 1985. The large expenditure incurred in 1985 was due primarily to one of the most severe fire seasons experienced in decades. British Columbia recorded a total of 3,600 forest fires, which burned over more than 250,000 ha. This represented a 50% increase in the number of fires and more than a 200% increase in the area burned by fires, in comparison with the most recent 10-year average[2].

Forest Access

Forest access expenditures decreased from $285 million in 1979 to $230 million in 1983, but rebounded significantly to $346 million in 1985. Expenditures on new roads and on maintenance of the existing road infrastructure in the period since 1983 were highest in British Columbia, where investment jumped from $90 million in 1983 to $222 million in 1985. This escalation in road building and maintenance activity represented a current dollar increase of 148%. Eighty-eight percent of the total dollar outlay on road access in 1985 in British Columbia was by the forest industry.

Forest Research and Development

Expenditures by government on forest research and development increased from $77 million in 1983 to a little over $89 million in 1985. This represents a current dollar increase over the period of approximately 16%. Increased funding of this activity took place in all provinces except New Brunswick, where there was a marginal decline in overall expenditures from 1983 to 1985. Of the total amounts expended, the federal government's contribution was 75% and 77% in 1983 and 1985, respectively. Although the forest industry carries out research and development work to address forest management problems, its expenditures are not known, since they are included with costs under the "other forestry" category.

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2 Anon. 1986. Annual Report of the Ministry of Forests, 1985/86. Province of British Columbia. October.

Other Forestry

Expenditures in this category by the public sector include only administration costs directly related to the support of forest management activities, while those by the private sector include forest inventory, forest research, administration, and other expenditures. Over all, expenditures in this category increased by 12%, from $364 million in 1983 to $406 million in 1985.

Within the public sector, administration costs vary considerably from year to year, and are probably the most difficult to forecast. Provincial expenditures over the two-year period increased by 15%, and those of the federal government by 144%. Industry expenditures, on the other hand, decreased by approximately 27%, from $88 million in 1983 to $64 million in 1985. The sharp rise in federal expenditures was due primarily to the administration and support costs incurred when the Canadian Forestry Service (now Forestry Canada) was designated a Ministry of State within the Department of Agriculture in 1984, and at the same time assumed federal responsibility for the implementation of federal-provincial forest resource development agreements.

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APPENDICES

APPENDIX 1

FOREST MANAGEMENT ACTIVITIES

DEFINITIONS: GOVERNMENT

ACTIVITY	SUBACTIVITY	ELEMENTS
Silviculture	regeneration	planting — bare-root, containers; seeding — direct; seeding with site preparation; strip cutting; shelterwood cutting; clearcutting
	tending	cleaning — manual, chemical, aerial, ground, mechanical; thinning and improvement cuts; pruning; fertilization; cultivation; drainage
	site preparation	mechanical; chemical; prescribed burn; scarification
	marking	for regeneration; for tending; for site preparation
	silvicultural support	seed collection; tree improvement; provincial stock production (container and bare-root); seed plant operations; purchased growing stock
Protection	fire	
	pests	
Resource access	capital	all road systems, primary, secondary and tertiary roads (including bridges), paid for by the managing agency
	maintenance	all monies expended to maintain the existing forest access road system
Inventory		photography, interpretation, inventory cruising, compilation, drafting
Research		total research expenditures in support of forest management
Timber management		operational timber surveys, cut and postcut inspections, management planning
Administration		total administration expenditures in support of the above forest management expenditures

DEFINITIONS: INDUSTRY

ACTIVITY	SUBACTIVITY	ELEMENTS
Silviculture	regeneration	
	- site preparation for natural regeneration	- scarification - prescribed burning - chemical - other
	- site preparation for artificial regeneration	- scarification - prescribed burning - chemical - other
	- artificial regeneration	- planting bare-root - planting containers - seed
	- modified cutting for regeneration	
	- silviculture support	- regeneration and survival survey - tree improvement
	stand tending	- cleaning manual - cleaning chemical (aerial) - cleaning chemical (ground) - precommercial thinning and spacing - commercial thinning - pruning - fertilization - cultivation - drainage
Forest protection	fire	- direct cost for prevention - direct cost for suppression - shared cost assessment - area protection charges
	insect and/or disease control	- direct cost - shared assessment - area protection charges
Forest access	road construction	
Other forestry	forest inventory forest research administration in support of forest management other expenditures	

DEFINITIONS: GOVERNMENT AND INDUSTRY

ACTIVITY[a]	PUBLIC[b]	INDUSTRY[c]
Silviculture	silviculture	silviculture
Protection	protection	forest protection
Access	resource access	forest access
Research	research	other forestry
Other	inventory timber management administration	

[a] forest management activities as used for summary purposes in Tables 11-14
[b] government forest management activity for summary purposes
[c] industry forest management activity for summary purposes

APPENDIX 2

FOREST MANAGEMENT EXPENDITURES BY GOVERNMENT

NEWFOUNDLAND

Distribution of expenditures on forest management by source and activity, 1984/85

Activity	Province		Federal		Total		
	Actual	Agreement	Actual	Agreement	Provincial	Federal	Total
				$000			
Silviculture							
regeneration	n/a	83.2	-	748.7	n/a	748.7	n/a
tending	n/a	352.6	-	3,173.2	n/a	3,173.2	n/a
site preparation	n/a	159.7	-	1,437.7	n/a	1,437.7	n/a
marking	n/a	-	-	-	n/a	-	n/a
silvicultural support	n/a	167.1	-	1,504.3	n/a	1,504.3	n/a
Total silviculture	995.0	762.6	-	6,863.9	1,757.6	6,863.9	8,621.5
Protection							
fire	n/a	61.7	-	554.9	n/a	554.9	n/a
pests	n/a	42.3	-	380.7	n/a	380.7	n/a
Total protection	2,250.0	104.0	-	935.6	2,354.0	935.6	3,289.6
Resource access	563.3	422.1	-	3,799.2	985.4	3,799.2	4,784.6
Inventory	110.0	102.5	-	922.5	212.5	922.5	1,135.0
Research	50.0	187.3	5,171.9[a]	1,685.9	237.3	6,857.8	7,095.1
Timber management	112.8	28.3	-	255.0	141.1	255.0	396.1
Administration	2,685.3	95.4	-	858.9	2,780.7	858.9	3,639.6
Other	-	-	-	-	-	-	-
Total	6,766.4	1,702.2	5,171.9	15,321.0	8,468.6	20,492.9	28,961.5

[a] total expenditures by FORCAN, Newfoundland and Labrador Region, excluding grants and contributions

n/a not available

- no expenditures

Source: Newfoundland Department of Forest Resources and Lands
FORCAN, Newfoundland and Labrador Region

NEWFOUNDLAND

Distribution of expenditures on forest management by source and activity, 1985/86

Activity	Province		Federal		Total		
	Actual	Agreement	Actual	Agreement	Provincial	Federal	Total
				$000			
Silviculture							
regeneration	n/a	99.0	-	891.2	n/a	891.2	n/a
tending	n/a	513.5	-	4,621.7	n/a	4,621.7	n/a
site preparation	n/a	59.8	-	538.0	n/a	538.0	n/a
marking	n/a	-	-	-	n/a	-	n/a
silvicultural support	n/a	120.6	-	1,085.1	n/a	1,085.1	n/a
Total silviculture	609.0	792.9	-	7,136.0	1,401.9	7,136.0	8,537.9
Protection							
fire	n/a	58.9	-	529.8	n/a	529.8	n/a
pests	n/a	43.5	-	391.1	n/a	391.1	n/a
Total protection	3,118.2	102.4	-	920.9	3,220.6	920.9	4,141.5
Resource access	1,637.1	145.3	-	1,307.7	1,782.4	1,307.7	3,090.1
Inventory	640.1	151.3	-	1,362.0	791.4	1,362.0	2,153.4
Research	-	64.9	4,683.1[a]	584.0	64.9	5,267.1	5,332.0
Timber management	2,316.6	8.2	-	74.2	2,324.8	74.2	2,399.0
Administration	2,570.6	99.6	-	896.2	2,670.2	896.2	3,566.4
Other	-	-	-	-	-	-	-
Total	10,891.6	1,364.6	4,683.1	12,281.0	12,256.2	16,964.1	29,220.3

[a] total expenditures by FORCAN, Newfoundland and Labrador Region, excluding grants and contributions

n/a not available

- no expenditures

Source: Newfoundland Department of Forest Resources and Lands
FORCAN, Newfoundland and Labrador Region

PRINCE EDWARD ISLAND

Distribution of expenditures on forest management by source and activity, 1984/85

Activity	Province		Federal		Total		
	Actual	Agreement	Actual	Agreement	Provincial	Federal	Total
				$000			
Silviculture							
regeneration	201.0	84.0	-	286.0	285.0	286.0	571.0
tending	201.0	108.0	-	508.0	309.0	508.0	817.0
site preparation	-	18.0	-	176.0	18.0	176.0	194.0
marking	-	6.0	-	44.0	6.0	44.0	50.0
silvicultural support	304.0	141.0	-	333.0	445.0	333.0	778.0
Total silviculture	706.0	357.0	-	1,347.0	1,063.0	1,347.0	2,410.0
Protection							
fire	43.0	-	-	-	43.0	-	43.0
pests	-	-	-	-	-	-	-
Total protection	43.0	-	-	-	43.0	-	43.0
Resource access	-	3.0	-	64.0	3.0	64.0	67.0
Inventory	-	37.0	-	55.0	37.0	55.0	92.0
Research	-	67.0	-	75.0	67.0	75.0	142.0
Timber management	-	250.0	-	387.0	250.0	387.0	637.0
Administration	55.0	418.0	-	126.0	473.0	126.0	599.0
Other	-	-	-	-	-	-	-
Total	804.0	1,132.0	-	2,054.0	1,936.0	2,054.0	3,990.0

- no expenditures

Source: Prince Edward Island Department of Energy and Forestry
FORCAN, Maritimes Region

PRINCE EDWARD ISLAND

Distribution of expenditures on forest management by source and activity, 1985/86

Activity	Province		Federal		Total		
	Actual	Agreement	Actual	Agreement	Provincial	Federal	Total
				$000			
Silviculture							
regeneration	200.0	91.0	-	436.0	291.0	436.0	727.0
tending	200.0	118.0	-	579.0	318.0	579.0	897.0
site preparation	-	19.0	-	353.0	19.0	353.0	372.0
marking	-	6.0	-	57.0	6.0	57.0	63.0
silvicultural support	295.0	150.0	-	352.0	445.0	352.0	797.0
Total silviculture	695.0	384.0	-	1,777.0	1,079.0	1,777.0	2,856.0
Protection							
fire	174.0	-	-	-	174.0	-	174.0
pests	-	-	-	-	-	-	-
Total protection	174.0	-	-	-	174.0	-	174.0
Resource access	-	4.0	-	122.0	4.0	122.0	126.0
Inventory	-	42.0	-	81.0	42.0	81.0	123.0
Research	-	71.0	-	79.0	71.0	79.0	150.0
Timber management	-	264.0	-	406.0	264.0	406.0	670.0
Administration	57.0	453.0	-	212.0	510.0	212.0	722.0
Other	-	-	-	-	-	-	-
Total	926.0	1,218.0	-	2,677.0	2,144.0	2,677.0	4,821.0

- no expenditures

Source: Prince Edward Island Department of Energy and Forestry
FORCAN, Maritimes Region

NOVA SCOTIA

Distribution of expenditures on forest management by source and activity, 1984/85

Activity	Province		Federal		Total		
	Actual	Agreement	Actual	Agreement	Provincial	Federal	Total
				$000			
Silviculture							
regeneration	-	684.1	-	940.9	684.1	940.9	1,625.0
tending	19.0	813.8	-	1,720.8	832.8	1,720.8	2,553.6
site preparation	-	343.0	-	597.8	343.0	597.8	940.8
marking	-	-	-	-	-	-	-
silvicultural support	1,825.3	900.2	-	424.5	2,725.5	424.5	3,150.0
Total silviculture	1,844.3	2,741.1	-	3,684.0	4,585.4	3,684.0	8,269.4
Protection							
fire	2,761.3	-	-	23.8	2,761.3	23.8	2,785.1
pests	751.9	-	-	-	751.9	-	751.9
Total protection	3,513.2	-	-	23.8	3,513.2	23.8	3,537.0
Resource access	153.9	1,082.2	-	906.4	1,236.1	906.4	2,142.5
Inventory	939.7	-	-	-	939.7	-	939.7
Research	611.3	-	-	-	611.3	-	611.3
Timber management	524.4	-	-	773.7	524.4	773.7	1,298.1
Administration	3,292.6	91.3	-	91.3	3,383.9	91.3	3,475.2
Other	-	184.7[a]	-	109.3[a]	184.7	109.3	294.0
Total	10,879.4	4,099.3	-	5,588.5	14,978.7	5,588.5	20,567.2

[a] expenditures on public information, education and training
- no expenditures

Source: Nova Scotia Department of Lands and Forests
FORCAN, Maritimes Region

NOVA SCOTIA

Distribution of expenditures on forest management by source and activity, 1985/86

Activity	Province		Federal		Total		
	Actual	Agreement	Actual	Agreement	Provincial	Federal	Total
				$000			
Silviculture							
regeneration	-	826.9	-	1,838.2	826.9	1,838.2	2,665.1
tending	84.7	1,059.8	-	2,761.7	1,144.5	2,761.7	3,906.2
site preparation	-	522.5	-	1,137.4	522.5	1,137.4	1,659.9
marking	-	-	-	-	-	-	-
silvicultural support	1,807.9	1,481.3[a]	-	506.1	3,289.2	506.1	3,795.3
Total silviculture	1,892.6	3,890.5	-	6,243.4	5,783.1	6,243.4	12,026.5
Protection							
fire	3,172.9	130.0	-	25.2	3,302.9	25.2	3,328.1
pests	1,327.7	-	-	-	1,327.7	-	1,327.7
Total protection	4,500.6	130.0	-	25.2	4,630.6	25.2	4,655.8
Resource access	173.0	710.5	-	1,363.0	883.5	1,363.0	2,246.5
Inventory	1,065.2	9.8	-	14.0	1,075.0	14.0	1,089.0
Research	677.2	7.5	-	92.7	684.7	92.7	777.4
Timber management	458.2	-	-	1,009.1	458.2	1,009.1	1,467.3
Administration	3,007.5	1,394.0	-	461.6	4,401.5	461.6	4,863.1
Other	-	525.5[b]	-	270.4[b]	525.5	270.4	795.9
Total	11,774.3	6,667.8	-	9,479.4	18,442.1	9,479.4	27,921.5

[a] includes $663.8 thousand on greenhouse construction expenditure
[b] expenditures on public information, education and training
- no expenditures

Source: Nova Scotia Department of Lands and Forests
FORCAN, Maritimes Region

NEW BRUNSWICK

Distribution of expenditures on forest management by source and activity, 1984/85

Activity	Province		Federal		Total		
	Actual	Agreement	Actual	Agreement	Provincial	Federal	Total
	$000						
Silviculture							
regeneration	24.2	1,361.5	-	1,055.1	1,385.7	1,055.1	2,440.8
tending	64.1	1,199.9	-	1,722.8	1,264.0	1,722.8	2,986.8
site preparation	-	848.3	-	709.3	848.3	709.3	1,557.6
marking	-	-	-	-	-	-	-
silvicultural support	510.8	1,551.3	-	1,321.0	2,062.1	1,321.0	3,383.1
Total silviculture	599.1	4,961.0	-	4,808.2	5,560.1	4,808.2	10,368.3
Protection							
fire	2,560.2	-	-	-	2,560.2	-	2,560.2
pests	7,895.6	-	-	-	7,895.6	-	7,895.6
Total protection	10,455.8	-	-	-	10,455.8	-	10,455.8
Resource access	-	229.3	-	-	229.3	-	229.3
Inventory	1,162.4	-	-	—	1,162.4	-	1,162.4
Research	-	0.7	7,426.4[a]	177.6	0.7	7,604.0	7,604.7
Timber management	335.8	50.1	-	65.7	385.9	65.7	451.6
Administration	12,289.3	6.6	-	332.1	12,295.9	332.1	12,628.0
Other	-	-	-	-	-	-	-
Total	24,842.4	5,247.7	7,426.4	5,383.6	30,090.1	12,810.0	42,900.1

[a] expenditures by FORCAN, Maritimes Region, excluding grants and contributions (This Centre services New Brunswick, Nova Scotia and Prince Edward Island).

- no expenditures

Source: New Brunswick Department of Natural Resources and Energy
FORCAN, Maritimes Region

NEW BRUNSWICK

Distribution of expenditures on forest management by source and activity, 1985/86

Activity	Province		Federal		Total		
	Actual	Agreement	Actual	Agreement	Provincial	Federal	Total
				$000			
Silviculture							
regeneration	206.7	1,481.4	-	1,503.3	1,688.1	1,503.3	3,191.4
tending	76.4	2,146.1	-	2,771.1	2,222.5	2,771.1	4,993.6
site preparation	-	923.2	-	1,080.1	923.2	1,080.1	2,003.3
marking	-	-	-	-	-	-	-
silvicultural support	699.6	2,049.5	-	1,770.0	2,749.1	1,770.0	4,519.1
Total silviculture	982.7	6,600.2	-	7,124.5	7,582.9	7,124.5	14,707.4
Protection							
fire	3,621.1	-	-	-	3,621.1	-	3,621.1
pests	7,454.0	-	-	-	7,454.0	-	7,454.0
Total protection	11,075.1	-	-	-	11,075.1	-	11,075.1
Resource access	-	189.8	-	48.7	189.8	48.7	238.5
Inventory	1,071.2	-	-	-	1,071.2	-	1,071.2
Research	22.6	23.0	8,206.7[a]	267.0	45.6	8,473.7	8,519.3
Timber management	369.3	75.9	-	178.5	445.2	178.5	623.7
Administration	13,530.5	18.6	-	504.5	13,549.1	504.5	14,053.6
Other	-	-	-	-	-	-	-
Total	27,051.4	6,907.5	8,206.7	8,123.2	33,958.9	16,329.9	50,288.8

[a] expenditures by FORCAN, Maritimes Region, excluding grants and contributions (This Centre services New Brunswick, Nova Scotia and Prince Edward Island).
- no expenditures

Source: New Brunswick Department of Natural Resources and Energy
FORCAN, Maritimes Region

QUEBEC

Distribution of expenditures on forest management by source and activity, 1984/85

Activity	Province		Federal		Total		
	Actual	Agreement	Actual	Agreement	Provincial	Federal	Total
				$000			
Silviculture							
regeneration	n/a	2,513.0	-	3,769.5	n/a	3,769.5	n/a
tending	n/a	737.2	-	1,105.8	n/a	1,105.8	n/a
site preparation	n/a	-	-	-	n/a	-	n/a
marking	n/a	-	-	-	n/a	-	n/a
silvicultural support	n/a	2,200.0	-	3,300.0	n/a	3,300.0	n/a
Total silviculture	76,896.6	5,450.2	-	8,175.3	82,346.8	8,175.3	90,522.1
Protection							
fire	n/a	-	-	-	n/a	-	n/a
pests	n/a	-	-	-	n/a	-	n/a
Total protection	30,791.8	-	-	-	30,791.8	-	30,791.8
Resource aceess	14,980.9	61.2	-	91.8	15,042.1	91.8	15,133.9
Inventory	4,247.5	-	-	-	4,247.5	-	4,247.5
Research	3,108.8	5.8	8,757.9[a]	8.7	3,114.6	8,766.6	11,881.2
Timber management	17,865.6	-	-	-	17,865.6	-	17,865.6
Administration	21,889.0	80.0	-	120.0	21,969.0	120.0	22,089.0
Other	-	-	2,381.4[b]	-	-	2,381.4	2,381.4
Total	169,780.2	5,597.2	11,139.3	8,395.8	175,377.4	19,535.1	194,912.5

[a] expenditures by FORCAN, Quebec Region, excluding grants and contributions
[b] forest development program of the Eastern Quebec Development Plan, which is federally funded, and supports various forestry activities
n/a not available
- no expenditures

Source: Ministère de l'energie et des ressources de Québec
FORCAN, Quebec Region

QUEBEC

Distribution of expenditures on forest management by source and activity, 1985/86

Activity	Province		Federal		Total		
	Actual	Agreement	Actual	Agreement	Provincial	Federal	Total
				$000			
Silviculture							
regeneration	n/a	5,408.0	–	5,493.9	n/a	5,493.9	n/a
tending	n/a	2,080.0	–	2,086.9	n/a	2,086.9	n/a
site preparation	n/a	6,239.5	–	6,253.7	n/a	6,253.7	n/a
marking	n/a	–	–	10.0	n/a	10.0	n/a
silvicultural support	n/a	5,998.5	–	5,998.5	n/a	5,998.5	n/a
Total silviculture	64,981.3	19,726.0	–	19,843.0	84,707.3	19,843.0	104,550.3
Protection							
fire	n/a	–	–	–	n/a	–	n/a
pests	n/a	–	–	–	n/a	–	n/a
Total protection	34,276.7	–	–	–	34,276.7	–	34,276.7
Resource access	11,317.4	–	–	–	11,317.4	–	11,317.4
Inventory	5,217.0	–	–	1.8	5,217.0	1.8	5,218.8
Research	1,899.6	637.5	9,436.1[a]	637.5	2,537.1	10,073.6	12,610.7
Timber management	18,521.9	–	–	108.4	18,521.9	108.4	18,630.3
Administration	31,956.5	2,510.0	–	432.0	34,466.5	432.0	34,898.5
Other	–	–	4,571.0[b]	–	–	4,571.0	4,571.0
Total	168,170.4	22,873.5	14,007.1	21,022.7	191,043.9	35,029.8	226,073.7

[a] expenditures by FORCAN, Quebec Region, excluding grants and contributions
[b] forest development program of the Eastern Quebec Development Plan, which is federally funded, and supports various forestry activities
n/a not available
– no expenditures

Source: Ministère de l'energie et des ressources de Québec
FORCAN, Quebec Region

ONTARIO

Distribution of expenditures on forest management by source and activity, 1984/85

Activity	Province		Federal		Total		
	Actual	Agreement	Actual	Agreement	Provincial	Federal	Total
				$000			
Silviculture							
regeneration	n/a	n/a	-	n/a	n/a	n/a	n/a
tending	n/a	n/a	-	n/a	n/a	n/a	n/a
site preparation	n/a	n/a	-	n/a	n/a	n/a	n/a
marking	n/a	n/a	-	n/a	n/a	n/a	n/a
silvicultural support	n/a	n/a	-	n/a	n/a	n/a	n/a
Total silviculture	72,815.0	7,381.5	-	7,381.5	80,196.5	7,381.5	87,578.0
Protection							
fire	n/a	-	-	-	-	-	n/a
pests	n/a	-	-	-	-	-	n/a
Total protection	45,771.0	-	-	-	45,771.0	-	45,771.0
Resource access	49,003.0	5,514.8	-	5,514.8	54,517.8	5,514.8	60,032.6
Inventory	1,573.0	145.0	-	145.0	1,718.0	145.0	1,863.0
Research	3,423.0	129.7	22,625.8[a]	129.7	3,552.7	22,755.5	26,308.2
Timber management	12,309.0	-	-	-	12,309.0	-	12,309.0
Administration	40,315.0	2.0	-	112.0	40,317.0	112.0	40,429.0
Other	-	-	-	-	-	-	-
Total	225,209.0	13,173.0	22,625.8	13,283.0	238,382.0	35,908.8	274,290.8

[a] includes expenditures by FORCAN, Ontario Region, the Forest Pest Management Institute and Petawawa National Forestry Institute, excluding grants and contributions

n/a not available

- no expenditures

Sources: Ontario Ministry of Natural Resources
FORCAN, Ontario Region
Petawawa National Forestry Institute, FORCAN
Forest Pest Management Institute, FORCAN

ONTARIO

Distribution of expenditures on forest management by source and activity, 1985/86

Activity	Province		Federal		Total		
	Actual	Agreement	Actual	Agreement	Provincial	Federal	Total
				$000			
Silviculture							
regeneration	n/a	n/a	-	n/a	n/a	n/a	n/a
tending	n/a	n/a	-	n/a	n/a	n/a	n/a
site preparation	n/a	n/a	-	n/a	n/a	n/a	n/a
marking	n/a	n/a	-	n/a	n/a	n/a	n/a
silvicultural support	n/a	n/a	-	n/a	n/a	n/a	n/a
Total silviculture	89,598.0	10,562.9	-	10,043.9	100,160.9	10,043.9	110,204.8
Protection							
fire	n/a	-	-	-	n/a	-	n/a
pests	n/a	-	-	-	n/a	-	n/a
Total protection	58,810.0	-	-	-	58,810.0	-	58,810.0
Resource access	52,109.0	5,218.7	-	5,218.7	57,327.7	5,218.7	62,546.4
Inventory	996.0	384.0	-	384.0	1,380.0	384.0	1,764.0
Research	2,968.0	236.4	23,027.9[a]	392.4	3,204.4	23,420.3	26,624.7
Timber management	14,717.0	-	-	-	14,717.0	-	14,717.0
Administration	42,434.0	116.5	-	479.5	42,550.5	479.5	43,030.0
Other	-	-	-	-	-	-	-
Total	261,632.0	16,518.5	23,027.9	16,518.5	278,150.5	39,546.4	317,696.9

[a] includes expenditures by FORCAN, Ontario Region, the Forest Pest Management Institute and Petawawa National Forestry Institute, excluding grants and contributions

n/a not available

- no expenditures

Sources: Ontario Ministry of Natural Resources
FORCAN, Ontario Region
Petawawa National Forestry Institute, FORCAN
Forest Pest Management Institute, FORCAN

MANITOBA

Distribution of expenditures on forest management by source and activity, 1984/85

Activity	Province		Federal		Total		
	Actual	Agreement	Actual	Agreement	Provincial	Federal	Total
				$000			
Silviculture							
regeneration	394.4	-	-	40.3	394.4	40.3	434.7
tending	-	159.2	-	96.4	159.2	96.4	255.6
site preparation	136.5	-	-	111.6	136.5	111.6	248.1
marking	95.9	-	-	-	95.9	-	95.9
silvicultural support	1,125.4	2,393.1[a]	-	1,361.0	3,518.5	1,361.0	4,879.5
Total silviculture	1,752.2	2,552.3	-	1,609.3	4,304.5	1,609.3	5,913.8
Protection							
fire	n/a	-	-	380.8	n/a	380.8	n/a
pests	n/a	-	-	-	n/a	-	n/a
Total protection	2001.8	-	-	380.8	2001.8	380.8	2,382.6
Resource access	-	-	-	-	-	-	-
Inventory	685.6	-	-	401.0	685.6	401.0	1,086.6
Research	61.2	72.1	-	138.4	133.3	138.4	271.7
Timber management	53.3	-	-	-	53.3	-	53.3
Administration	189.5	-	-	119.8	189.5	119.8	309.3
Other	-	1.1[b]	-	67.0[b]	1.1	67.0	68.1
Total	4,743.6	2,625.5	-	2,716.3	7,369.1	2,716.3	10,085.4

[a] includes expenditures on nursery development
[b] includes expenditures on public information and evaluation
n/a not available
- no expenditures

Sources: Manitoba Department of Natural Resources, Forestry Branch
FORCAN, Northwest Region

MANITOBA

Distribution of expenditures on forest management by source and activity, 1985/86

Activity	Province		Federal		Total		
	Actual	Agreement	Actual	Agreement	Provincial	Federal	Total
				$000			
Silviculture							
regeneration	348.2	-	-	400.1	348.2	400.1	748.3
tending	-	203.3	-	143.6	203.3	143.6	346.9
site preparation	239.4	-	-	176.0	239.4	176.0	415.4
marking	115.8	-	-	-	115.8	-	115.8
silvicultural support	846.3	2,049.4[a]	-	580.0	2,895.7	580.0	3,475.7
Total silviculture	1,549.7	2,252.7	-	1,299.7	3,802.4	1,299.7	5,102.1
Protection							
fire	n/a	-	-	-	n/a	-	n/a
pests	n/a	59.1	-	46.7	n/a	46.7	n/a
Total protection	1,915.0	59.1	-	46.7	1,974.1	46.7	2,020.8
Resource access	-	-	-	-	-	-	-
Inventory	761.4	-	-	466.9	761.4	466.9	1,228.3
Research	104.1	590.6	-	705.2	694.7	705.2	1,399.9
Timber management	251.7	-	-	-	251.7	-	251.7
Administration	264.3	-	-	169.5	264.3	169.5	433.8
Other	-	2.4[b]	-	45.6[b]	2.4	45.6	48.0
Total	4,846.2	2,904.8	-	2,733.6	7,751.0	2,733.6	10,484.6

[a] includes expenditures on nursery development
[b] includes expenditures on public information and evaluation
n/a not available
- no expenditures

Sources: Manitoba Department of Natural Resources, Forestry Branch
FORCAN, Northwest Region

SASKATCHEWAN

Distribution of expenditures on forest management by source and activity, 1984/85

Activity	Province		Federal		Total		
	Actual	Agreement	Actual	Agreement	Provincial	Federal	Total
				$000			
Silviculture							
regeneration	1,306.5	-	-	28.6	1,306.5	28.6	1,335.1
tending	69.1	-	-	11.1	69.1	11.1	80.2
site preparation	339.6	406.7	-	-	746.3	-	746.3
marking	-	-	-	-	-	-	-
silvicultural support	1,693.2	-	-	34.8	1,693.2	34.8	1,728.0
Total silviculture	3,408.4	406.7	-	74.5	3,815.1	74.5	3,889.6
Protection							
fire	14,723.5	32.7	-	224.9	14,756.2	224.9	14,981.1
pests	61.9	-	-	-	61.9	-	61.9
Total protection	14,785.4	32.7	-	224.9	14,818.1	224.9	15,043.0
Resource access	317.0	421.6	-	-	738.6	-	738.6
Inventory	1,431.2	-	-	-	1,431.2	-	1,431.2
Research	61.5	-	-	88.1	61.5	88.1	149.6
Timber management	405.6	-	-	47.3	405.6	47.3	452.9
Administration	1,338.9	24.2	-	1.4	1,363.1	1.4	1,364.5
Other	-	-	-	-	-	-	-
Total	21,748.0	885.2	-	436.2	22,633.2	436.2	23,069.4

- no expenditures

Sources: Saskatchewan Department of Parks and Renewable Resources
FORCAN, Northwest Region

SASKATCHEWAN

Distribution of expenditures on forest management by source and activity, 1985/86

Activity	Province		Federal		Total		
	Actual	Agreement	Actual	Agreement	Provincial	Federal	Total
				$000			
Silviculture							
regeneration	139.9	106.6	-	1,593.0	246.5	1,593.0	1,839.5
tending	55.7	129.6	-	484.2	185.3	484.2	669.5
site preparation	39.6	640.7	-	-	680.3	-	680.3
marking	-	-	-	-	-	-	-
silvicultural support	1,539.9	-	-	114.3	1,539.9	114.3	1,654.2
Total silviculture	1,775.1	876.9	-	2,191.5	2,652.0	2,191.5	4,843.5
Protection							
fire	9,108.8	112.2	-	48.6	9,221.0	48.6	9,269.6
pests	40.2	-	-	-	40.2	-	40.2
Total protection	9,149.0	112.2	-	48.6	9,261.2	48.6	9,309.8
Resource access	361.2	1,171.2	-	-	1,532.4	-	1,532.4
Inventory	1,345.1	245.2	-	311.2	1,590.3	311.2	1,901.5
Research	181.5	20.4	-	316.0	201.9	316.0	517.9
Timber management	249.6	14.8	-	-	264.4	-	264.4
Administration	833.8	62.0	-	71.7	895.8	71.7	967.5
Other	-	60.1[a]	-	69.7[a]	60.1	69.7	129.8
Total	13,895.3	2,562.8	-	3,008.7	16,458.1	3,008.7	19,466.8

[a] expenditures on public information and evaluation
- no expenditures

Sources: Saskatchewan Department of Parks and Renewable Resources
FORCAN, Northwest Region

ALBERTA

Distribution of expenditures on forest management by source and activity, 1984/85

Activity	Province		Federal		Total		
	Actual	Agreement	Actual	Agreement	Provincial	Federal	Total
				$000			
Silviculture							
regeneration	3,892.3	-	-	-	3,892.3	-	3,892.3
tending	191.2	-	-	-	191.2	-	191.2
site preparation	3,031.5	-	-	-	3,031.5	-	3,031.5
marking	-	-	-	-	-	-	-
silvicultural support	1,730.9	-	-	-	1,730.9	-	1,730.9
Total silviculture	8,845.9	-	-	-	8,845.9	-	8,845.9
Protection							
fire	21,951.2	-	-	-	21,951.2	-	21,951.2
pests	1,177.6	-	-	-	1,177.6	-	1,177.6
Total protection	23,128.8	-	-	-	23,128.8	-	23,128.8
Resource access	-	-	-	-	-	-	-
Inventory	1,406.9	-	-	-	1,406.9	-	1,406.9
Research	1,501.0	-	10,446.8[a]	-	1,501.0	10,446.8	11,947.8
Timber management	1,879.3	-	-	-	1,879.3	-	1,879.3
Administration	29,486.1	-	-	13.7	29,486.1	13.7	29,499.8
Other	-	-	-	-	-	-	-
Total	66,248.0	-	10,446.8	13.7	66,248.0	10,460.5	76,708.5

[a] expenditures by FORCAN, Northwest Region, excluding grants and contributions
- no expenditures

Sources: Alberta Department of Forestry, Lands and Wildlife
FORCAN, Northwest Region

ALBERTA

Distribution of expenditures on forest management by source and activity, 1985/86

Activity	Province		Federal		Total		
	Actual	Agreement	Actual	Agreement	Provincial	Federal	Total
				$000			
Silviculture							
regeneration	4,009.4	-	-	-	4,009.4	-	4,009.4
tending	379.6	-	-	53.8	379.6	53.8	433.4
site preparation	3,498.4	-	-	-	3,498.4	-	3,498.4
marking	-	-	-	-	-	-	-
silvicultural support	1,685.7	-	-	23.1	1,685.7	23.1	1,708.8
Total silviculture	9,573.1	-	-	76.9	9,573.1	76.9	9,650.0
Protection							
fire	20,453.1	-	-	-	20,453.1	-	20,453.1
pests	667.7	-	-	-	667.7	-	667.7
Total protection	21,120.8	-	-	-	21,120.8	-	21,120.8
Resource access	-	-	-	-	-	-	-
Inventory	1,451.1	-	-	-	1,451.1	-	1,451.1
Research	1,584.0	786.8	7,658.0[a]	1,029.4	2,370.8	8,687.4	11,058.2
Timber management	1,816.6	-	-	-	1,816.6	-	1,816.6
Administration	32,107.3	53.8	-	126.0	32,161.1	126.0	32,287.1
Other	-	-	-	37.9[b]	-	37.9	37.9
Total	67,652.9	840.6	7,658.0	1,270.2	68,493.5	8,928.2	77,421.7

[a] expenditures by FORCAN, Northwest Region, excluding grants and contributions
(This Centre services Alberta, Saskatchewan, Manitoba and the Northwest Territories.)
- no expenditures

[b] Expenditures on public information and evaluation

Sources: Alberta Department of Forestry, Lands and Wildlife
FORCAN, Northwest Region

BRITISH COLUMBIA

Distribution of expenditures on forest management by source and activity, 1984/85

Activity	Province		Federal		Total		
	Actual	Agreement	Actual	Agreement	Provincial	Federal	Total
				$000			
Silviculture							
regeneration	n/a	1,520.0	-	1,520.0	n/a	1,520.0	n/a
tending	n/a	-	-	-	n/a	-	n/a
site preparation	n/a	2,227.5	-	2,227.5	n/a	2,227.5	n/a
marking	n/a	-	-	-	n/a	-	n/a
silvicultural support	n/a	1,000.0	-	1,000.0	n/a	1,000.0	n/a
Total silviculture	105,186.0	4,747.5	-	4,747.5	109,933.5	4,747.5	114,681.0
Protection							
fire	n/a	-	-	-	n/a	-	n/a
pests	n/a	-	-	-	n/a	-	n/a
Total protection	58,586.0	-	-	-	58,586.0	-	58,586.0
Resource access	23,139.0	-	-	-	23,139.0	-	23,139.0
Inventory	7,549.0	410.3	-	410.3	7,959.3	410.3	8,369.6
Research	8,983.0	310.0	9,109.7[a]	310.0	9,293.0	9,419.7	18,712.7
Timber management	43,073.0	-	-	-	43,073.0	-	43,073.0
Administration	65,382.0	32.2	-	32.2	65,414.2	32.2	65,446.4
Other	-	-	-	-	-	-	-
Total	311,898.0	5,500.0	9,109.7	5,500.0	317,398.0	14,609.7	332,007.7

[a] total expenditures by FORCAN, Pacific and Yukon Region, excluding grants and contributions (FORCAN, Pacific and Yukon Region services British Columbia and the Yukon Territory.)

n/a not available

- no expenditures

Sources: British Columbia Ministry of Forests and Lands
FORCAN, Pacific and Yukon Region

BRITISH COLUMBIA

Distribution of expenditures on forest management by source and activity, 1985/86

Activity	Province		Federal		Total		
	Actual	Agreement	Actual	Agreement	Provincial	Federal	Total
				$000			
Silviculture							
regeneration	n/a	2,039.3	-	2,053.2	n/a	2,053.2	n/a
tending	n/a	1,209.9	-	1,175.1	n/a	1,175.1	n/a
site preparation	n/a	2,352.2	-	2,388.2	n/a	2,388.2	n/a
marking	n/a	-	-	-	n/a	-	n/a
silvicultural support	n/a	7,495.4	-	2,123.5	n/a	2,123.5	n/a
Total silviculture	119,937.0	13,096.8	-	7,740.0	133,033.8	7,740.0	140,773.8
Protection							
fire	n/a	-	-	-	n/a	-	n/a
pests	n/a	-	-	-	n/a	-	n/a
Total protection	154,803.0	-	-	-	154,803.0	-	154,803.0
Resource access	26,778.0	-	-	-	26,778.0	-	26,778.0
Inventory	6,728.0	528.9	-	550.2	7,256.9	550.2	7,807.1
Research	9,424.0	1,280.0	10,827.8[a]	853.5	10,704.0	11,681.3	22,385.3
Timber management	46,153.0	-	-	-	46,153.0	-	46,153.0
Administration	55,350.0	224.4	-	875.8	55,574.4	875.8	56,450.2
Other	-	-	-	-	-	-	-
Total	419,173.0	15,130.1	10,827.8	10,019.5	434,303.1	20,847.3	455,150.4

[a] total expenditures by FORCAN, Pacific and Yukon Region, excluding grants and contributions (FORCAN, Pacific and Yukon Region services British Columbia and the Yukon Territory.)

n/a not available

- no expenditures

Sources: British Columbia Ministry of Forests and Lands
FORCAN, Pacific and Yukon Region

YUKON AND NORTHWEST TERRITORIES

Distribution of expenditures on forest management by source and activity, 1984/85

Activity	Territories		Federal		Total		
	Actual	Agreement	Actual	Agreement	Territories	Federal	Total
				$000			
Silviculture							
regeneration	-	-	-	-	-	-	-
tending	-	-	-	-	-	-	-
site preparation	-	-	-	-	-	-	-
marking	-	-	-	-	-	-	-
silvicultural support	-	-	-	-	-	-	-
Total silviculture	-	-	-	-	-	-	-
Protection							
fire	-	-	n/a	-	-	n/a	n/a
pests	-	-	n/a	-	-	n/a	n/a
Resource access	-	-	20,970.0	-	-	20,970.0	20,970.0
Inventory	-	-	-	-	-	-	-
Research	-	-	- a	-	-	- a	-
Timber management	-	-	-	-	-	-	-
Administration	-	-	1,469.0	-	-	1,469.0	1,469.0
Other	-	-	- a	-	-	- a	-
			-	-	-	-	-
Total	-	-	22,439.0	-	-	22,439.0	22,439.0

a expenditures included in timber management
n/a not available
- no expenditures

Source: Department of Indian and Northern Affairs

YUKON AND NORTHWEST TERRITORIES

Distribution of expenditures on forest management by source and activity, 1985/86

Activity	Territories		Federal		Total		
	Actual	Agreement	Actual	Agreement	Territories	Federal	Total
				$000			
Silviculture							
regeneration	-	-	-	-	-	-	-
tending	-	-	-	-	-	-	-
site preparation	-	-	-	-	-	-	-
marking	-	-	-	-	-	-	-
silvicultural support	-	-	-	-	-	-	-
Total silviculture	-	-	-	-	-	-	-
Protection							
fire	-	-	n/a	-	-	n/a	n/a
pests	-	-	n/a	-	-	n/a	n/a
Total protection	-	-	19,378.0	-	-	19,378.0	19,378.0
Resource access	-	-	-	-	-	-	-
Inventory	-	-	- [a]	-	-	- [a]	-
Research	-	-	-	-	-	-	-
Timber management	-	-	1,799.0	-	-	1,799.0	1,799.0
Administration	-	-	- [a]	-	-	- [a]	-
Other	-	-	-	-	-	-	-
Total	-	-	21,177.0	-	-	21,177.0	21,177.0

[a] expenditures included in timber management
n/a not available
- no expenditures

Source: Department of Indian and Northern Affairs

FORCAN HEADQUARTERS—NATIONAL CAPITAL REGION

Distribution of expenditures on forest management by source and activity, 1984/85

Activity	Province		Federal		Total		
	Actual	Agreement	Actual	Agreement	Provincial	Federal	Total
				$000			
Silviculture							
regeneration	-	-	-	-	-	-	-
tending	-	-	-	-	-	-	-
site preparation	-	-	-	-	-	-	-
marking	-	-	-	-	-	-	-
silvicultural support	-	-	-	-	-	-	-
Total silviculture	-	-	-	-	-	-	-
Protection							
fire	-	-	-	-	-	-	-
pests	-	-	-	-	-	-	-
Total protection	-	-	-	-	-	-	-
Resource access	-	-	-	-	-	-	-
Inventory	-	-	-	-	-	-	-
Research	-	-	-	-	-	-	-
Timber management	-	-	-	-	-	-	-
Administration	-	-	29,032.0[a]	-	-	29,032.0	29,032.0
Other	-	-	6,214.0[b]	-	-	6,214.0	6,214.0
Total	-	-	35,246.0	-	-	35,246.0	35,246.0

[a] total expenditures, excluding grants and contributions
[b] expenditures on statutory contributions
- no expenditures

Source: FORCAN Headquarters, National Capital Region

FORCAN HEADQUARTERS—NATIONAL CAPITAL REGION

Distribution of expenditures on forest management by source and activity, 1985/86

Activity	Province		Federal		Total		
	Actual	Agreement	Actual	Agreement	Provincial	Federal	Total
				$000			
Silviculture							
regeneration	-	-	-	-	-	-	-
tending	-	-	-	-	-	-	-
site preparation	-	-	-	-	-	-	-
marking	-	-	-	-	-	-	-
silvicultural support	-	-	-	-	-	-	-
Total silviculture	-	-	-	-	-	-	-
Protection							
fire	-	-	-	-	-	-	-
pests	-	-	-	-	-	-	-
Total protection	-	-	-	-	-	-	-
Resource access	-	-	-	-	-	-	-
Inventory	-	-	-	-	-	-	-
Research	-	-	-	-	-	-	-
Timber management	-	-	-	-	-	-	-
Administration	-	-	24,771.0[a]	-	-	24,771.0	24,771.0
Other	-	-	7,482.0[b]	-	-	7,482.0	7,482.0
Total	-	-	32,253.0	-	-	32,253.0	32,253.0

[a] total expenditures, excluding grants and contributions
[b] expenditures on statutory contributions
n/a not available
- no expenditures

Source: FORCAN Headquarters, National Capital Region

APPENDIX 3

FOREST MANAGEMENT EXPENDITURES BY INDUSTRY

NEWFOUNDLAND

Distribution of industry expenditures on forest management by source and activity, 1983 and 1985

Activity	1983			1985		
	Gross expenditures	Recovered from government	Net industry	Gross expenditures	Recovered from government	Net industry
	$000			$000		
Silviculture						
Regeneration	986			2,714		
Stand tending	2,335			2,518		
	3,321	2,002	1,319	5,232	3,479	1,753
Forest protection	1,688	20	1,668	2,398	30	2,368
Forest access	1,716	474	1,242	2,417	525	1,892
Other forestry	781	-	781	1,685	-	1,685
Total	7,506	2,496	5,010	11,732	4,034	7,698

Source: Canadian Pulp and Paper Association

NOVA SCOTIA

Distribution of industry expenditures on forest management by source and activity, 1983 and 1985

Activity	1983			1985		
	Gross expenditures	Recovered from government	Net industry	Gross expenditures	Recovered from government	Net industry
	$000			$000		
Silviculture						
Regeneration	2,927			3,597		
Stand tending	1,871			3,861		
	4,798	1,674	3,124	7,458	2,950	4,508
Forest protection	129	-	129	121	-	121
Forest access	2,777	18	2,759	3,344	29	3,315
Other forestry	1,688	-	1,688	2,350	-	2,350
Total	9,392	1,692	7,700	13,273	2,979	10,294

Source: Canadian Pulp and Paper Association

NEW BRUNSWICK

Distribution of industry expenditures on forest management by source and activity, 1983 and 1985

Activity	1983			1985		
	Gross expenditures	Recovered from government	Net industry	Gross expenditures	Recovered from government	Net industry
	$000			$000		
Silviculture						
Regeneration	4,529			8,254		
Stand tending	2,355			4,672		
	6,884	3,067	3,817	12,926	4,112	8,814
Forest protection	1,998	144	1,854	2,840	202	2,638
Forest access	3,656	-	3,656	1,163	-	1,163
Other forestry	4,251	-	4,251	4,343	200	4,143
Total	16,789	3,211	13,578	21,272	4,514	16,758

Source: Canadian Pulp and Paper Association

QUEBEC

Distribution of industry expenditures on forest management by source and activity, 1983 and 1985

Activity	1983 Gross expenditures	1983 Recovered from government	1983 Net industry	1985 Gross expenditures	1985 Recovered from government	1985 Net industry
		$000			$000	
Silviculture						
Regeneration	4,948			12,674		
Stand tending	1,128			730		
	6,076	2,174	3,902	13,404	4,691	8,713
Forest protection	12,434	1,079	11,355	13,320	1,332	11,988
Forest access	40,056	13,838	26,218	18,886	6,610	12,276
Other forestry	10,511	50	10,461	8,786	439	8,347
Total	69,077	17,141	51,936	54,396	13,072	41,324

Source: Canadian Pulp and Paper Association

ONTARIO

Distribution of industry expenditures on forest management by source and activity, 1983 and 1985

Activity	1983 Gross expenditures	1983 Recovered from government	1983 Net industry	1985 Gross expenditures	1985 Recovered from government	1985 Net industry
	$000			$000		
Silviculture						
Regeneration	12,686			22,516		
Stand tending	548			2,502		
	13,234	8,589	4,645	25,018	19,111	5,907
Forest protection	7,596	281	7,315	4,810	120	4,690
Forest access	33,686	19,364	14,322	42,666	24,958	17,708
Other forestry	6,682	140	6,542	8,790	-	8,790
Total	61,198	28,374	32,824	81,284	44,189	37,095

Source: Canadian Pulp and Paper Association

MANITOBA

Distribution of industry expenditures on forest management by source and activity, 1983 and 1985

Activity	1983 Gross expenditures	1983 Recovered from government	1983 Net industry	1985 Gross expenditures	1985 Recovered from government	1985 Net industry
	$000			$000		
Silviculture						
Regeneration	265			1,320		
Stand tending	58			273		
	323	323	-	1,593	1,086	507
Forest protection	33	-	33	18	-	18
Forest access	1,042	48	994	1,156	58	1,098
Other forestry	684	118	566	1,326	226	1,100
Total	2,082	489	1,593	4,093	1,370	2,723

Source: Canadian Pulp and Paper Association

SASKATCHEWAN

Distribution of industry expenditures on forest management by source and activity, 1983 and 1985

Activity	1983 Gross expenditures	1983 Recovered from government	1983 Net industry	1985 Gross expenditures	1985 Recovered from government	1985 Net industry
	$000			$000		
Silviculture						
Regeneration	921			886		
Stand tending	86			183		
	1,007	-	1,007	1,069	264	805
Forest protection	40	-	40	40	-	40
Forest access	382	-	382	102	-	102
Other forestry	520	-	520	501	-	501
Total	1,949	-	1,949	1,712	264	1,448

Source: Canadian Pulp and Paper Association

ALBERTA

Distribution of industry expenditures on forest management by source and activity, 1983 and 1985

Activity	1983			1985		
	Gross expenditures	Recovered from government	Net industry	Gross expenditures	Recovered from government	Net industry
	$000			$000		
Silviculture						
Regeneration	4,962			5,692		
Stand tending	-			210		
	4,962	501	4,461	5,902	590	5,312
Forest protection	1,635	3	1,632	1,728	34	1,694
Forest access	6,366	-	6,366	6,120	-	6,120
Other forestry	3,945	-	3,945	5,908	-	5,908
Total	16,908	504	16,404	19,658	624	19,034

Source: Canadian Pulp and Paper Association

BRITISH COLUMBIA

Distribution of industry expenditures on forest management by source and activity, 1983 and 1985

Activity	1983 Gross expenditures	1983 Recovered from government	1983 Net industry	1985 Gross expenditures	1985 Recovered from government	1985 Net industry
		$000			$000	
Silviculture						
Regeneration	54,925			65,207		
Stand tending	4,041			11,895		
	58,966	44,671	14,295	77,102	50,105	26,997
Forest protection	10,819	1,100	9,719	16,779	939	15,840
Forest access	80,640	14,739	65,901	214,556	19,421	195,135
Other forestry	61,349	2,002	59,347	33,786	2,163	31,623
Total	211,774	62,512	149,262	342,223	72,628	269,595

Source: Canadian Pulp and Paper Association